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Checking *Small Plot* Weed Spraying Equipment

COOPERATIVE EXTENSION SERVICE
SOUTH DAKOTA STATE UNIVERSITY
U. S. DEPARTMENT OF AGRICULTURE

Checking *Small Plot* Weed Spraying Equipment

by LYLE A. DERSCHEID, extension agronomist

Between 15 and 20 herbicides are being used for weed control in crops and more than a dozen others are recommended for use in controlling noxious weeds. They may be obtained in liquid or powder form. All may at some time or other be applied to small areas with hand equipment. It is important that the right amount be applied. If too little is applied, the weeds will not be controlled; if too much is applied, the tops may be killed without injuring the roots. The amount of chemical needed for a square rod area for several rates of application is given in table 1.

A knapsack sprayer for treating small patches of weeds. (Photo courtesy of Roberts County Weed Board.)

Sprayers

For spot treatment of small patches with 2,4-D or other sprays, the knapsack sprayer is very useful. The sprayer can be equipped to cover a swath 4 or 5 feet wide. Herbicide can be applied in 1 quart to 1 gallon of water per square rod, depending on the size of the nozzle and the speed that the operator walks.

STEP 1. Measure the amount of water put into the sprayer.

STEP 2. Mark out a square rod area (16½ feet by 16½ feet or any rectangle containing 272.25 square feet).

STEP 3. Spray the square rod. Walk at the same speed that will be used when spraying. Have pressure in sprayer the same as will be used when spraying.

STEP 4. Measure the amount of water left in the sprayer. Subtract this amount from that originally put in the sprayer. The difference is the amount used to spray a square rod. If 2 quarts were used, the amount of chemical for a square rod (table 1) should be measured into each 2 quarts of water used. The same is true for any other amount of water.

Granular Applicators

There are two general types of applicators for application of granules on small plots:

Cart-type Spreader

STEP 1. Determine the distance that spreader must travel to cover a square rod. Divide number

Table 1. Amount of Chemical Needed on 1 Square Rod When Treating Patches

If you wish to apply this many pounds per acre	Your chemical contains this many lb./gal. or this % active ingredient					
	1 lb./gal.	3 lb./gal.	3 lb./gal.	4 lb./gal.	75% (dalapon)	80% (TCA)
	Apply this amount on each square rod*					
½	----	----	----	----	----	----
¾	4 tsp.	2 tsp.	1½ tsp.	1 tsp.	----	----
1	2 T.	1 T.	2¼ tsp.	1½ tsp.	----	----
1½	4 T.	4 tsp.	1 T.	2 tsp.	----	----
2	3 T.	2 Tsp.	1½ T.	1 T.	----	----
3	6 T.	3 Tsp.	6¾ tsp.	1½ T.	----	----
4	½ cup	4 Tsp.	3 T.	2 T.	----	----
5	⅝ cup	5 Tsp.	3¾ T.	2½ T.	----	1½ T.
10	1¼ cup	⅝ cup	7½ T.	5 T.	3¾ T.	3 T.
15	1⅔ cup	⅞ cup	⅞ cup	6⅔ T.	5⅓ T.	4½ T.
20	2½ cup	1¼ cup	15/16 cup	⅞ cup	7½ T.	6 T.
25	3⅛ cup	1 9/16 cup	1⅙ cup	⅞ cup	9½ T.	7½ T.
50	6¼ cup	3⅛ cup	2⅓ cup	1 9/16 cup	1⅙ cup	15/16 cup
100	12½ cup	6¼ cup	4¾ cup	3⅛ cup	2⅓ cup	1⅞ cup

*tsp=teaspoon; T=tablespoon.

of square feet in a square rod (272.25) by the width (feet) of the spreader.

Example: You have a 3-foot spreader; 272.25÷ 3 = 91 feet the spreader will have to travel.

STEP 2. Measure the circumference of a wheel. Run a string around the outside of the wheel. Measure the length of the string. Suppose the circumference is 5 feet.

STEP 3. Determine the number of revolutions the wheel will make in order to cover one square rod. Divide the feet that spreader will travel by the circumference of the wheel.

Example: 91 (Step 1) ÷ 5 (Step 2) = 16 1/5 revolutions to cover one square rod.

STEP 4. Determine the amount of chemical the spreader will discharge on one square rod.

- Set the spreader according to manufacturer's instructions.
- Fill hopper with chemical.
- Jack-up the spreader.
- Put a canvas under the spreader to catch the chemical.
- Turn the wheel the number of times required to cover a square rod (16 1/5 revolutions in Step 3).
- Weigh the chemical. If you do not have the amount needed for a square rod, readjust the spreader and repeat step 4 until you have the desired amount.

Chest Spreader

Straps from this spreader are put around the operators shoulders and the spreader rests against his chest. A crank is turned to broadcast the chemical. The operator must maintain a constant walking speed and turn the crank one revolution for each two paces.

STEP 1. Determine the distance the spreader must travel in order to cover a square rod. This is the same as step 1 for a cart-type spreader.

Example: Your spreader covers a 6-foot swath; 272.25 ÷ 6 = 45⅓ feet.

STEP 2. Put a weighed amount of chemical in the hopper.

STEP 3. Walk the distance required to cover a square rod (45⅓ feet in Step 1), cranking the spreader and walking at the same speeds that will be used while treating weeds.

STEP 4. Determine the amount of chemical discharged on a square rod. Weigh the chemical left in the hopper. Subtract this from the weight of the original amount put in the hopper. This difference is the amount delivered on a square rod.

STEP 5. If the correct amount was not discharged, readjust the spreader and repeat Steps 2, 3 and 4 until the desired amount is discharged.

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